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ses no advantages over that of Supan, which takes account of more typical characteristics of climate. Ravenstein's hygrothermal types rest upon unsatisfactory data, and regions of very different climatic conditions are grouped together because they happen to have the same mean annual temperature and relative humidity.

THE NORTH AMERICAN SHEETS OF STIELER'S HAND-ATLAS.

BY

FREDERICK J. H. MERRILL.

The sheets of Stieler's Hand-Atlas relating to North America command serious attention because of the high accuracy and authority of this work. They comprise a general map of North America, a general map of the United States, a six-sheet map of the United States, a two-sheet map of Canada, one of the West Indies and Central America, and one of Mexico. It is much to be regretted that no special sheet was prepared of Alaska, which promises so much in its mineral wealth.

The six-sheet map of the United States is of especial interest, because it is the only recent one of our country on which so high a degree of engraving skill has been concentrated, for the establishment of Justus Perthes in Gotha stands unsurpassed in the world for the exquisite delicacy of its work in geographic engraving.

To the editor of these sheets, Mr. Hermann Habenicht, belongs high credit for the painstaking labour he has bestowed on the compilation. There is, so far as the writer is aware, no map of the United States on which so much geographic detail is clearly shown on the small scale of 61 miles to the inch; and, so far as he can discover from a careful inspection of the sheets, there is practically nothing which has been omitted in the matter of topography and drainage. The culture has also received careful attention; for the number of places with names is exceedingly great, and almost no place that has been located on any of the larger maps has been omitted from this laborious compilation. These maps, therefore, in point of completeness and accuracy of geographic detail, stand certainly unsurpassed, and probably unequalled.

To publish such a series of maps without errors of any sort would be beyond the scope of possibility; and on account of the international character of the publication, the writer has given a some-

what critical study to the errors which appear in it, believing that from them a useful lesson might be drawn as a guide to others in the compilation of similar maps, and possibly to the publishers of the sheets in question for the preparation of future editions. The errors observed are mainly in names, and are of several classes, which may in general be stated as follows:

a. Mis-spelling of names which have no obvious ordinary meaning, and which, therefore, require geographic knowledge for their detection.

Under this heading one may note at random: Sheveport for Shreveport, La.; Chipple Creek for Cripple Creek, Col.; Fernandino for Fernandina, Fla.; Tomocacori for Tumucacori, Arizona. Many such instances could be cited.

b. Mis-spelling of names which have an ordinary meaning, and in which errors could be detected by a well-educated person. Errors of this class are especially noticeable within the former limits of New Spain.

As one looks over the southwestern portion of the United States, in the territory obtained from Mexico by conquest and purchase, as well as south of the national boundary within Mexican territory, one notices many errors in spelling which would have been detected if the map had been placed under the inspection of a proof-reader who knew Spanish. At random we observe in Sonora, Viñateria for Vinateria; Cineguilla for Cienaguilla. In Arizona, Navajoe for Navajo; in New Mexico, Alamagordo for Alamo-gordo; in California, Cayole for Coyote, and Santa Anna for Santa Ana.

c. Mis-spelling of names which in other parts of the sheet are properly spelled.

Under this head we notice Papayo and Papago, Pesqueria and Pesqueira.

d. Inconsistency in the linguistic treatment of names of geographic features, using indiscriminately German, Spanish, and English words for the same feature.

It is primarily observed that the English words *lake* and *river* have been used with great uniformity throughout the United States, but in regard to some of the other features a random use of German has crept in; for instance, in Nebraska we find Sand Hills, but in Wyoming we find *Sand Dünen*. So, also, in Southern California we find Salton *See*, and at the mouth of the Colorado River *Schlammbänke*. So, also, on the coast of the United States the

English word Bay is used almost universally; while on the coast of British America, German and English, and on the coast of Mexico Spanish and English equivalents are used in bewildering alternation.

On the west coast of Vancouver's Island we find *Quatsino Sund*, *Kiyokut Sund*, Nootka Sound, Cloyoquot Sound, Barclay Sound. So at the mouth of the St. Lawrence River we find River St. Lawrence, Canadian Channel; St. Lawrence *Golf*, Belle Isle *Strasse*. In the interior of Canada we find Lake of the Woods, Lake Winnipeg, Lake Athabasca, and then, suddenly, *Grosser Sklaven See*, *Grosser Bären See*, and the names of various Indian tribes in German. So, also, we read Lake Huron, Georgian Bay, and a little farther north Hudson *Bai*, James *Bai*.

On Sheet 89 we read Baja California, and immediately beside it *Golf von Californien*. So, also, Bahia Viscaïno, and immediately beside it Cristobal *Bai*.

On Sheet 85, the general map of the United States, we find Baja California changed to *Nieder Californien*; and on Sheet 82, the general map of North America, we find *Halbinsel Californien*.

As Baja California is the name of one of the organized Territories of the Mexican Republic, these variations in terminology seem wholly indefensible.

On Sheet 85 we find *Neu Mexico*, although we also find New York, New Hampshire, and New Jersey, and we are somewhat surprised to see Nova Scotia turned into *Neu Schottland* and New Brunswick into *Neu Braunschweig*. Lake Superior also stands out in contrast with Huron *See*, Michigan *See*, Erie *See*, and Ontario *See*.

On Sheet 82 we are further interested in finding Lake Superior translated into *Oberer See*, the necessity for which is not at all evident.

On Maps 82 and 85 we find St. Lawrence spelled *St. Lorenz*, although on the sheet of East Canada the English form is used.

On looking at maps of various portions of the British Empire to ascertain what rule has been followed there, we see that in the British Isles English words are used throughout. So, also, in Australia. In Hindustan and vicinity, however, both German and English terms are used.

In the Philippine Islands Spanish and German terms are employed.

On the West Indian sheet, No. 93, we see a puzzling variation in the names of waterways; while our English word "key," for a small island, has been replaced by *cay*, even in the name of our City

of Key West. Republik Domingo is possibly an engraver's error for Santo Domingo.

e. Omissions, mainly in railroads and railroad stations.

The writer had with him the sheets in question during a recent trip through the southwest, and observed that a number of the newer railroads were omitted, notably the El Paso and Southwestern; in Arizona the railroad between Phoenix and Prescott, that from Williams to Grand Canyon, and some others. In this connection arose, no doubt, a question as to sources of information. The published maps, accessible to the compiler through the ordinary channels, would probably be deficient in some of the latest railroads; but if he had provided himself with some of the latest time-tables—or, better still, the commercial railway guides, which are published and revised monthly—he would have had the latest information in an intelligible form.

In ethnology some expert guidance will be necessary for future editions. The following special errors are noted:

The Apache Indians are shown on Sheet 89 as occupying most of the southern border of New Mexico and Arizona, while it is well known that since the capture of Geronimo in 1884 they have been restricted to certain reservations. Some variations are also noticed in the spelling of Indian names; for instance, Kioway, Navajoe (alluded to in class *b*).

A very remarkable bit of information comes to light in South-eastern Kansas, which is indicated as the habitat of a tribe of *New York Indians*. Just what fact was to be conveyed by this record remains to be determined.

A marked example of national expression is to be observed on the western limit of the United States where the Pacific Ocean is labelled "Grosser Ocean." While one expects linguistic variations from the time-honoured name of Pacific Ocean, to depart so materially from this earlier name of distinct priority seems to have the same degree of logic as for a German geographer to assign to the Mississippi River some such name as "Grosser Fluss." It is to be hoped that the future tendency of mapmakers will be to reduce the number of geographic synonyms.

A variation is also noted in the abbreviation for the word Mountains, which in common English usage has come to be Mts. The sheets under discussion use indiscriminately Mounts., Mts., and Ms. It would seem to the writer that one abbreviation were far better than three.

The map of Mexico gives very satisfactory expression to the

topographic features of this remarkable country, and is probably the best small-scale map of Mexico in existence.

The main conclusion to be drawn from a critical inspection of these maps is that the publishers' staff is more highly trained in geographic compilation and engraving than in literary criticism. No very serious matter, perhaps, but still one worthy of consideration in the preparation of future editions.

In regard to possible improvements in compilation, the writer would suggest the revision of those parts of Sonora and Chihuahua shown on Sheet 89 of the Southwestern United States. Here, the boundary between these two important States is omitted, the drainage needs revision, and much detail might be added by referring to the best maps of Sonora—namely, that of Herbert, published in Nogales, and that of Max Bohmer, of Hermosillo, engraved by J. Köhler in Hamburg.

With all the painstaking effort in general compilation one notices a lack of quantitative expression in continental relief. For the United States the 40-mile contour map of the U. S. Geological Survey put in small scale by the experts of Justus Perthes' establishment would be a marvel of physiographic detail. In this respect the physical maps of the various continents published in Vivien de Saint Martin's General Atlas, now continued by Schrader and issued by Hachette in Paris, are worthy of attention for their exquisite detail and harmonious, distinctive, and expressive coloring.

A FIELD FOR STUDIES IN REGIONAL GEOGRAPHY.

BY

WALTER S. TOWER.

The Evolution of Geography.—Geography, in name at least, finds a place among the earliest sciences, but during its life the content of geography has undergone material changes. Until the nineteenth century geography was almost entirely descriptive, concerning itself with the study of the earth *and* its inhabitants. There was little place for explanation, and hence little correlation between the two elements. The first definite change was effected in the early part of the nineteenth century by the introduction of explanation along with description. Explanation brought out the relationships previously unemphasized, and geography came to be the study of the